INNOVATIVE GAS SENSORS

smartMODUL for Ethylene // Technical Data

Infrared gas sensor for fruit ripening processes

Infrared gas sensor using dual beam technology with measurement and reference channel. Developed for Ethylene detection in fruit ripening and food storage applications. Including optical gas filter for minimized CO_2 cross effects and highly reliable and selective Ethylene measurements. Drift and temperature compensated.

- Flow operation
- Infrared measuring principle (NDIR)
- Dual beam technology
- Modbus ASCII via UART
- Robust aluminium cuvette
- 3/5mm gas line connectors
- Pre calibrated
- High selectivity
- Customer-specific modules possible

Gases *	Measurement range	Model type
Ethylene C_2H_4	0-2000 ppm	F1-030205-00001

Work with Confidence

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Sensors similar to the illustration

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General features	
Measurement principle:	Non Dispersive Infra-Red (NDIR), dual wavelength
Measurement range:	0 – 2.000 ppm
Gas supply:	by flow
Gas line connectors:	3 mm internal, 5 mm outer diameter
Flow rate:	0.2 – 0.8 l/min (constant)
Dimensions:	~ 261 mm x 28 mm x 42 mm (L x W x H) (including optical CO_2 filter)
Warm-up time:	< 2 minutes (start up time) < 30 minutes (full specification)
Measuring response [2]	
Response time (t_{90}):	Appr. 15 s (@ 0.5 l/min)
Digital resolution (@ zero):	1 ppm
Detection Limit (3 σ):	≤ 1 % FS[3] (typically)
Repeatability:	≤ ± 1 % FS[3]
Linearity error [4]:	≤ ± 2 % FS[3]
Long term stability (zero) [5]:	
Long term stability (span) [5]:	
Influencing variable [6]	
Temp. Dependence (zero):	≤ ± 0.1 % FS[3] per °C
Temp. Dependence (span):	≤ ± 0.2 % FS[3] per °C
Pressure Dependence (zero):	-
Pressure Dependence (span):	
Electrical inputs and outputs	
Supply voltage:	6 V DC ± 5 %
Supply current:	70 mA average, max. 140 mA
Power consumption:	< 1 Watt
Digital output signal:	Modbus ASCII via UART
Calibration:	zero and span by SW
Climatic conditions	
Operating temperature:	-10 °C to 40 °C (others possible)
Storage temperature:	-20 °C to 60 °C
Air pressure:	800 to 1200 hPa
Humidity:	0 % to 95 % rel. humidity (not condensing)

Also available with additional pcb as PREMIUM (P1-...) sensor with a wider supply voltage range of 12 - 28V DC, analog signal output 0 (4) - 20 mA and digital output RS 485.

[1] **Dependent on the gas and the measurement range**
[2] **Relating to atmospheric pressure 1013 hPa absolute and 25 °C ambient temperature (type Diffusion) or sample gas pressure 1013 hPa absolute, 0.5 l/min gas flow and 25°C ambient and gas temperature (type Flow)**
[3] **FS = Full scale**
[4] **Stated linearity error excludes calibration gas tolerance of ± 2 %**
[5] **For dry and clean test gas at 25°C and 1013hPa absolute - depending on the operating and ambient conditions values may differ**
[6] **Relating to calibration conditions (see final check)**
Please consult smartGAS Marketing for parts specified with other temperature and measurement ranges.
At first initiation and depending on application and ambient conditions recalibration is recommended. Recurring cycles of recalibration are recommended.

For more information, please visit www.smartGAS.eu or contact us at sales@smartgas.eu

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